

In the Claims:

43. (presently amended). An array of nucleic acids comprising a plurality of distinct optically resolvable polynucleotide molecules immobilized on a solid surface, wherein each said polynucleotide molecule comprises a polynucleotide duplex covalently linked to form a hairpin loop structure, wherein one end of said polynucleotide duplex which comprises a target polynucleotide, and adjacent polynucleotide molecules immobilized on the array are separated by a distance of at least 100nm each polynucleotide duplex is an individually resolvable molecule detectable as a single molecule fluorescent point, wherein fluorescence from said single molecule fluorescent point exhibits single step photobleaching.

44. (previously presented) An array according to claim 43, wherein immobilization to the solid surface is via covalent attachment.

47. (presently cancelled) An array according to claim 43, wherein said molecules are separated by a distance of at least 250nm.

48. (previously presented) An array according to claim 43, wherein said surface density is 10^6 molecules per cm^2 .

49. (previously presented) An array according to claim 48, wherein said density is 10^7 to 10^8 molecules per cm^2 .

50. (presently amended) An array according to claim 43, wherein at least one polynucleotide molecule immobilized on the solid surface is hybridized to ~~has~~ a second polynucleotide ~~hybridized thereto~~.

51. (previously amended) An array according to claim 43, wherein at least one polynucleotide molecule immobilized on the solid surface is a ~~of~~ known sequence.

52. (previously presented) An array according to claim 43, wherein said surface density is 10^9 molecules per cm^2 .
53. (previously presented) An array according to claim 43, wherein the molecules are individually resolvable by optical microscopy.
54. (previously presented) An array according to claim 43, wherein the polynucleotide duplex is covalently linked by a polyethylene glycol (PEG) molecule to form a hairpin loop structure.
55. (newly presented) An array according to claim 43, wherein said plurality of distinct optically resolvable polynucleotide molecules immobilized on a solid surface comprises genomic DNA fragments.